

NOTES ON CERTAIN PALÆARCTIC SPECIES OF THE GENUS  
*HEMEROBIOUS*.No. 1.—INTRODUCTORY REMARKS AND THE GROUP OF *H. NERVOSUS*.

BY ROBERT McLACHLAN, F.R.S., &amp;c.

It has long been evident to workers on the European species of this genus (as now restricted) that specific determination is often difficult.

When in 1868 (Trans. Ent. Soc. Lond., 1868, pp. 145, *et seqq.*) I published my "Monograph of the British *Neuroptera-Planipennia*," I made what was probably the first extended attempt at elucidating the subject by descriptions and figures of the male appendages. The remarks at p. 175 of that Monograph as to synonymy and structure obtain almost equally well now, after the lapse of more than thirty years, as then. But it is perhaps possible to throw a little more light on the subject. More than ten years ago I had in view a Revision of the palæarctic species, and had prepared fresh figures of the anal parts for several of them. About that time it was considered advisable that I should abandon, at any rate temporarily, *camera lucida* drawing, and having once abandoned it, the difficulty of resuming it became apparent when attempted. Ever ready to assist me, and influenced by the fact that at least two British species have never been properly elucidated, my friend and former pupil (in *Neuroptera*), Mr. K. J. Morton, kindly came to my aid, and supplied the necessary drawings.

I think it possible, in most cases, to separate the *males* by the anal structural characters, and these notes mainly concern these characters. Of course, in most cases, the females can be rightly assigned to their proper partners by general characters, but I am not yet able, in the majority of cases, to bring forward structural anal differences in that sex, and there are several instances in which the males show very striking anal structure, rendering differentiation easy, but in which I am not yet quite able to satisfactorily identify the respective females when, as is often the case (for the females seem more plentiful), unaccompanied by the males from the same locality; and even if the males be present, it happens that two species very similar in general aspect often occur together. Time, and more careful observations, especially *in the field*, will no doubt remedy this, and possession of the key once obtained, future workers will probably find all difficulties vanish.

It is scarcely necessary to remark that the numerous extra-palæarctic, especially North American, forms, *can never be satisfactorily elucidated unless treated in the same manner*. In connection with this it is necessary to give a warning to the effect that certain palæarctic

species are apparently nearctic also, and that the nomenclature and synonymy of the former cannot be considered settled until a careful revision of the latter be made, for there appear to be cases in which the name bestowed upon nearctic examples may have the right of priority.

In putting together these notes a certain amount of preliminary knowledge on the part of the reader has been presumed.

#### HEMEROBIUS NERVOSUS AND ALLIES.

The members of this group are amongst the largest of the palæ-arctic species. The prevailing colour may be said to be *grey*. The thorax above has a broad, longitudinal, pale (whitish to ochreous) band (in which is a black median line) which is deep black on each side. The wings are long-oval, the anterior pair mottled with grey and greyish-black, and the venuration white interrupted with blackish (or *vice versa*), the gradate nervules forming ill-defined dark fasciæ. The anal structure of the males seems to partake of the same general plan in all the species.

*H. nervosus*, Fab, (1793), *et auct.*

? *H. betulinus*, Ström, Nye Samling af det Kongel. Norskes Bidsensklabers Selskabs Skrifter, ii, pp. 387—389, tab. v (1788).

The anterior wings usually prettily mottled. By several authors (including Brauer and myself) it has been said that the second "post-costal"\* cellule (*cf.* Brauer, Neuropt. Austr., fig. 103) is open. This, if constant, would be a very satisfactory character by which to separate the females of this species. But it is not constant, for I have several males undoubtedly belonging here in which the cellule is closed.



The appendages of the ♂ have the basal portion long and rather narrow, the apical portion regularly curved and not forming an abrupt angle with the basal, its edge finely serrate at the tip inwardly.

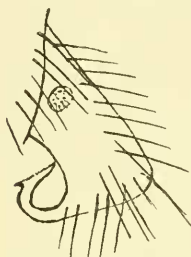
A wide-spread species, extending into the Arctic Circle, probably less common south of the Alps. Very partial to birch trees.

I have a very strong opinion that this insect is in all probability Ström's *H. betulinus*, and it is solely my dislike for upsetting existing nomenclature that deters me from adopting the name. Ström's description is full (and there is a good figure), even to the male appendages, which so far as I can make out were as in *nervosus* and not

\* It seems to me that *post-cubital* would be more correct than *post-costal* for these cellules.

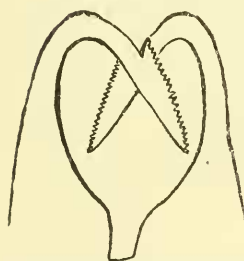
the allied species. In fact, the whole account was far in advance of the times. He bred the insect, but possibly confused more than one species in the larval state. Now that attention has been called to the subject the matter may be left for elucidation, and more especially by Scandinavian entomologists. Schöyen (Christiania Vid.-Selskabs Forhandl., 1887, No. 13) referred *betulinus* doubtfully to *subnebulosus*.

#### H. SUBNEBULOSUS, Steph.



Of the same form as *H. nervosus*, but as a rule with the anterior wings less mottled.

In the ♂ the appendages have a broad, straight, basal portion, from which the very narrow apical portion descends at a right angle and is strongly incurved at the tip, which is furnished externally with a barb, the outer edge of which is finely serrate for its whole length, the tips often crossing if viewed from beneath.

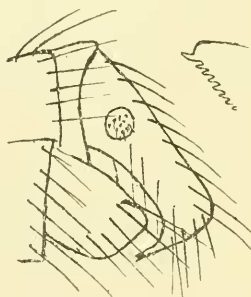


Possibly found all over Europe and adjacent districts. In England it is especially a garden insect, and as such liable to be dispersed with plants and shrubs. Occurs in the interior of London, and one of the first to appear in spring. I have it from Portugal and Madeira. In most English examples the anterior wings appear almost of a pale leaden-grey, requiring magnifying power to break up into (mostly) angulate markings, but those from southern Europe are much paler. I may be wrong, but it has occurred to me that the specimens from in and around London are the darkest of all.

#### H. MORTONI, n. sp.

Having the anterior wings apparently broader and more obtuse than in the two preceding, arising from the costal edge being more arched (hence the costal area is broader, especially at the base). As a rule less strongly mottled than in *nervosus*, and less uniform than in *subnebulosus*.

The anal appendages of the ♂ having the basal portion straight and rather broad, the apical portion descending from it at a right angle in the form of a straight short process, with no barb at the apex, but the tip obscurely toothed, and microscopically serrate on the edge if viewed from beneath. A further character for this species is that in the ♂ the dorsum of the apex of the abdomen is rather densely clothed with golden coloured hairs.



Apparently a boreal and alpine species, but very wide-spread; probably always fre-

quencing conifers. I cannot discover that it has been anywhere described, but there can be little doubt it is confused with the allied species in some collections and lists. I possess about thirty-five examples referred here. Males (with females) from Finmark (*Chapman* and *Lloyd*); Switzerland (Bergün, *Zeller*; Valais, *Fallou*); North Italy (Macugnaga, Val Auzasca, Val Furva, *Eaton*, *McLachlan*); Alps of Dauphiné (Bourg d'Oisans and La Grave, *McLachlan*); Pyrénées Orientales (*McLachlan*), Eaux Bonnes (*Eaton*). Also females without males (hence slightly less certain) from Switzerland (Bignasco, *Eaton*; Val Levantina, *McLachlan*); Tyrol (Cortina, *Champion*); Austria (*Brauer*); Carinthia (*Zeller*); Savoy (Chamonix, *McLachlan*); Central Pyrenees (*Eaton*); various localities in Germany (*Zeller*). Mr. Morton took both sexes (the types) at Rannoch, Scotland, in June, 1898.

There might be a possibility of confounding this with examples (exceptional in neuration) of *H. concinnus*, Steph., var. *quadrifasciatus*, Reuter. But *both* sexes of the latter differ widely in the anal parts, for in *H. concinnus* the female abdomen ends in a prominent short upturned ovipositor.\*

I have a species from North America (Colorado) so much like *Mortoni* that I dare not say it is distinct.

Lewisham, London :

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PSEUDO-NEUROPTERA, PLANIPENNIA, AND TRICHOPTERA  
COLLECTED AT RANNOCH IN JUNE, 1898.

BY JAMES J. F. X. KING, F.E.S.

Towards the end of 1897 Mr. C. A. Briggs made a proposal to the effect that an excursion should be arranged to Rannoch of such entomologists as were more or less interested in *Neuroptera*, with the view of working up this group especially, and particularly of capturing *Æschna cærulea (borealis)* and *Somatochlora arctica*. The result of this proposal was that Mr. G. T. Porritt joined me in Glasgow on the afternoon of June 6th; we left the city by the early West Highland train on the morning of the 7th, meeting Mr. Briggs, who had travelled through from Lynmouth, at a wayside station outside of

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\* I take this opportunity of stating that the North American *H. longifrons*, Walker, was introduced by me, Journ. Linn. Soc., Zool., ix, pp 272-273 into the European Fauna in error, and the name should be expunged from the lists. The European examples were *H. concinnus*, var. *quadrifasciatus*, and I now feel sure the American *H. longifrons* is distinct, but allied.